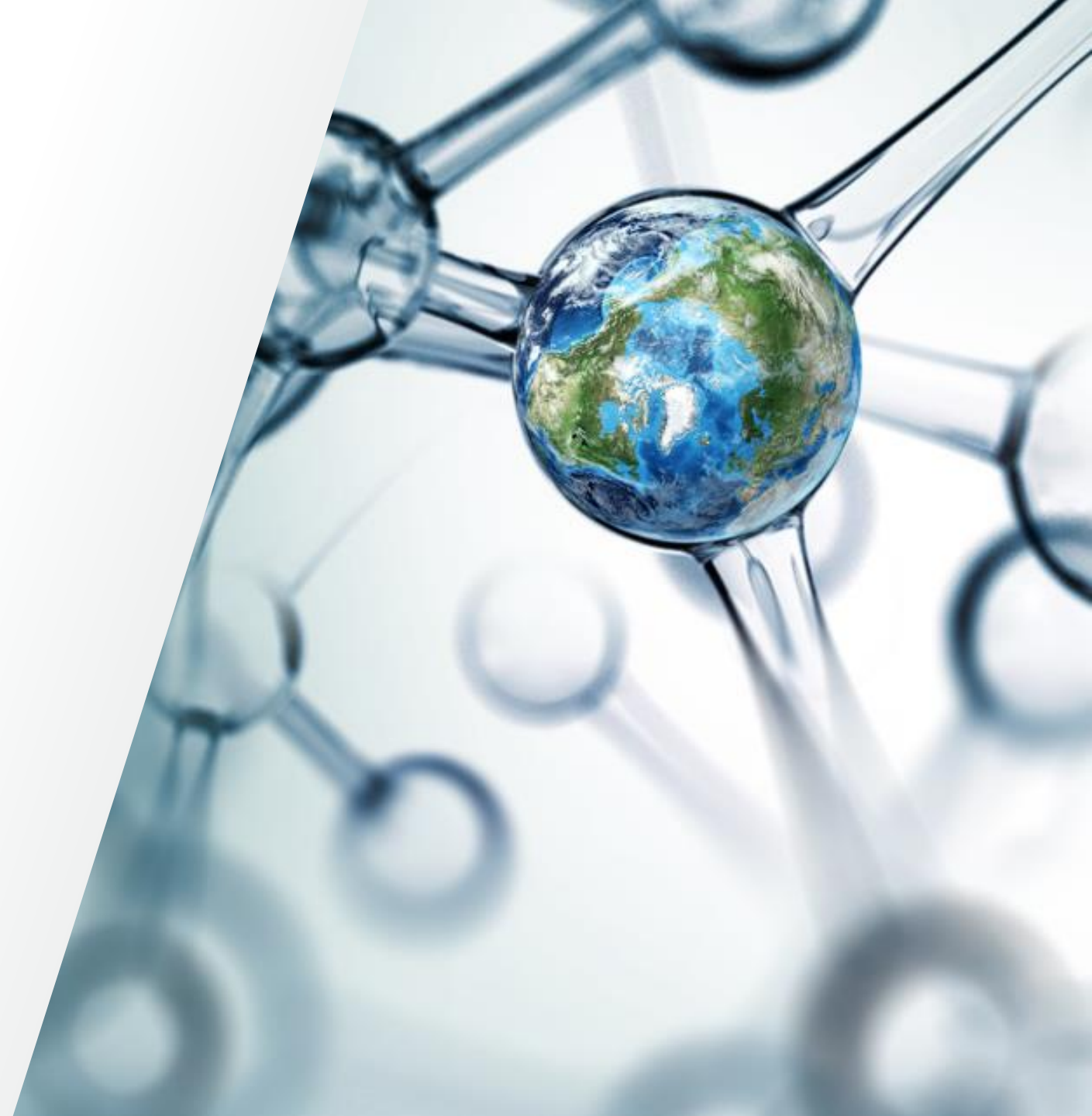


Field Repair Procedure

DT00261 Field Repair

Remove / Replace XZ Gimbal

 The world leader in serving science



Revisions



Revision	Change Description	Changed By/Date
A	New Release	RCH 8/16/2023

Why are you doing this operation?

Symptoms

You wish to replace one or all of the following:

XZ Motion Assembly

Gimbal Assembly

Gimbal Actuator Assembly

Nozzle Body

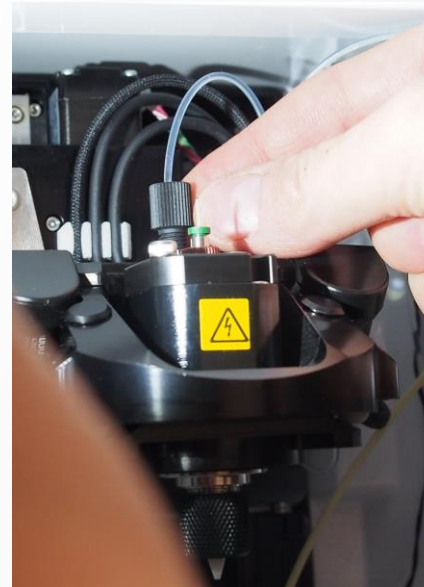
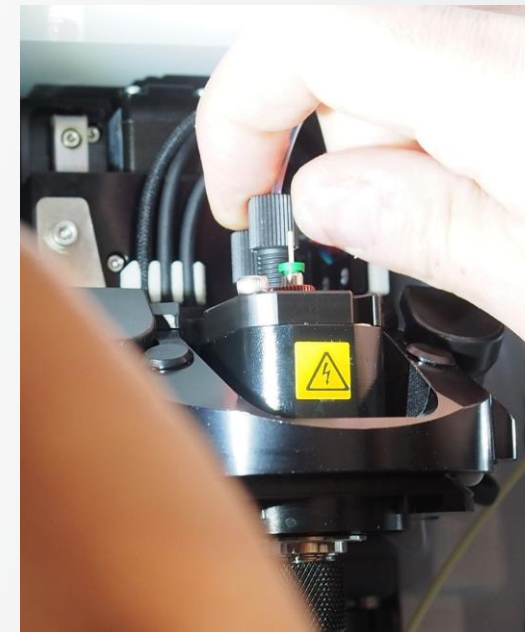
Failed Tests

Preparation

1	Remove instrument top cover (See other procedure)
2	Remove instrument back cover (See other procedure)
3	Remove Detection-side Omala (See other procedure)
4	Use software to Move Nozzle Mover to “Line Change” Position
5	Do not power off yet

Disconnect Sample Line

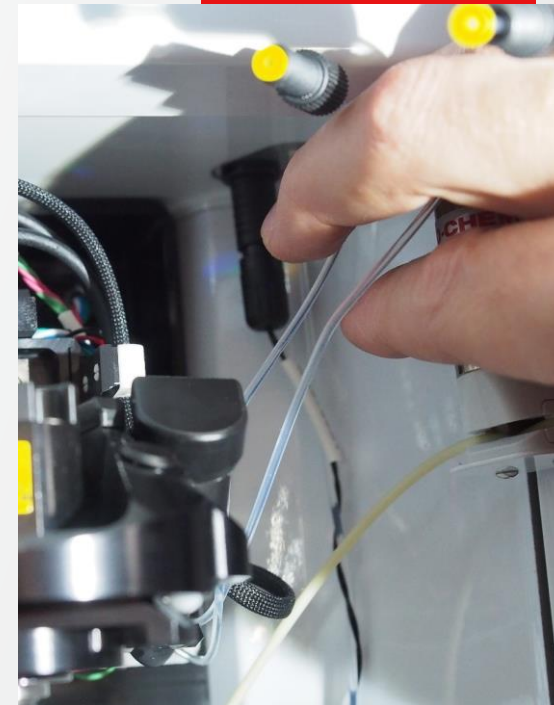
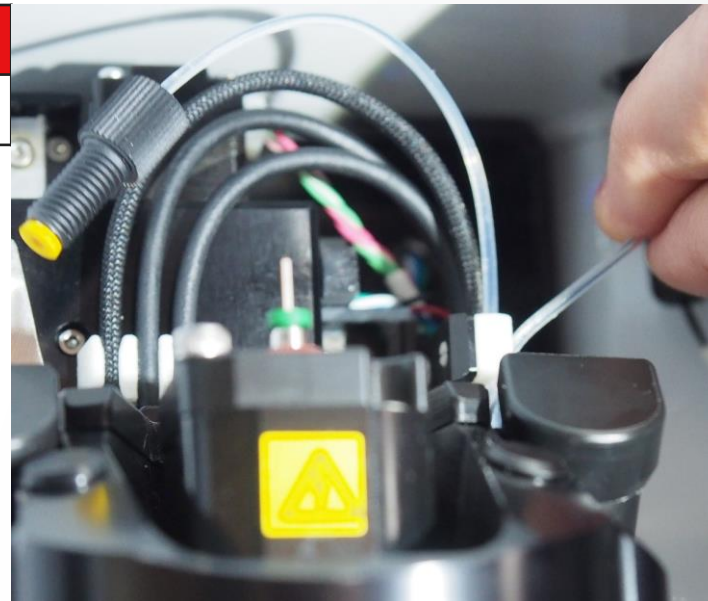
- | | |
|----------|------------------------------------|
| 1 | Disconnect Sample Line |
| 2 | Disconnect front nozzle fluid line |
| 3 | Disconnect rear nozzle fluid line |



Disconnect Fluidics

1

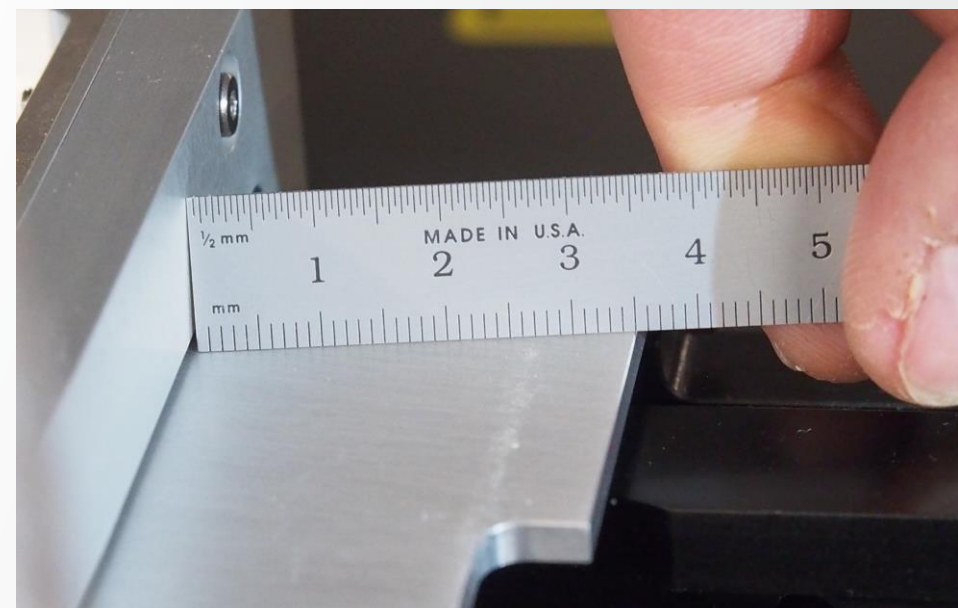
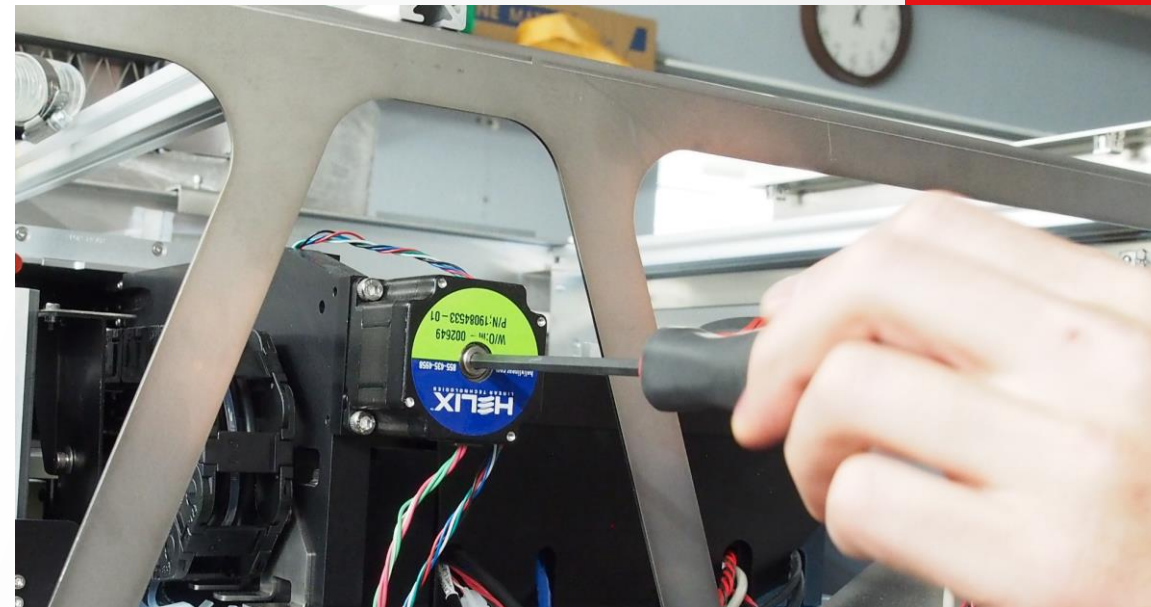
Remove the two fluid lines from the right-side tubing clip



1	Use Service Tool>Nozzle Mover to Move Nozzle Mover to “Tip Change” Position
2	Turn off instrument power

Move Y Axis

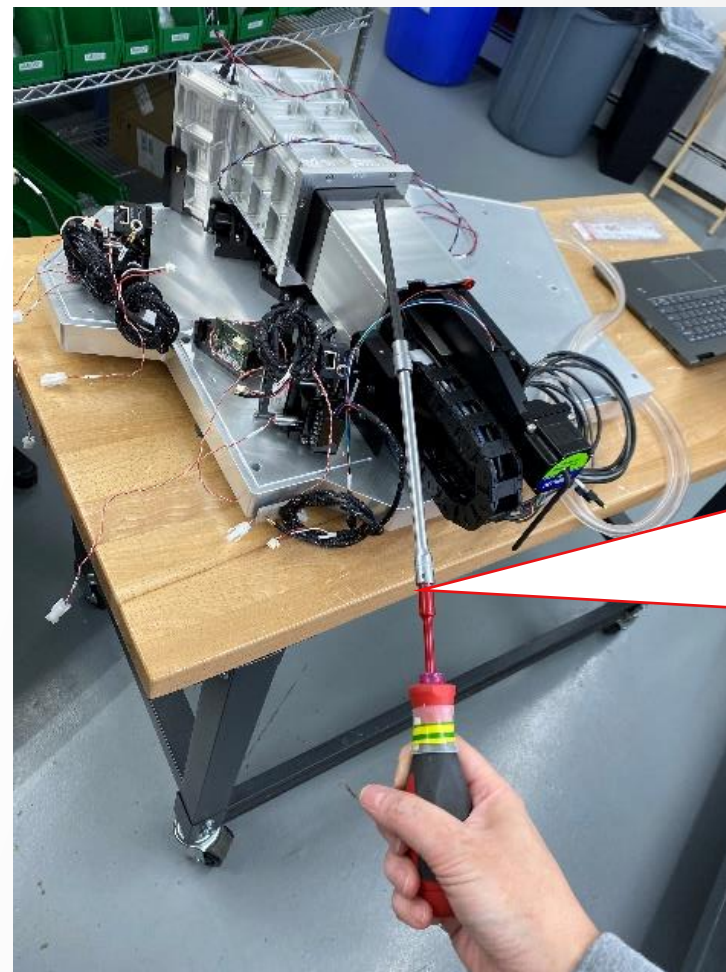
- | | |
|----------|---|
| 1 | Use a 5 mm hex driver to move the Y-axis rear-wards approximately 30 mm |
| 2 | Stop moving when the Y-axis Moving Cover extends 35 mm past the Y-axis Seal assembly. |



Prep Tools

1

Collect tool combination.

**IM00279**

2.5 Driver

IM00385

Adapter

IM00843

1/4" Square

Extension, 150mm

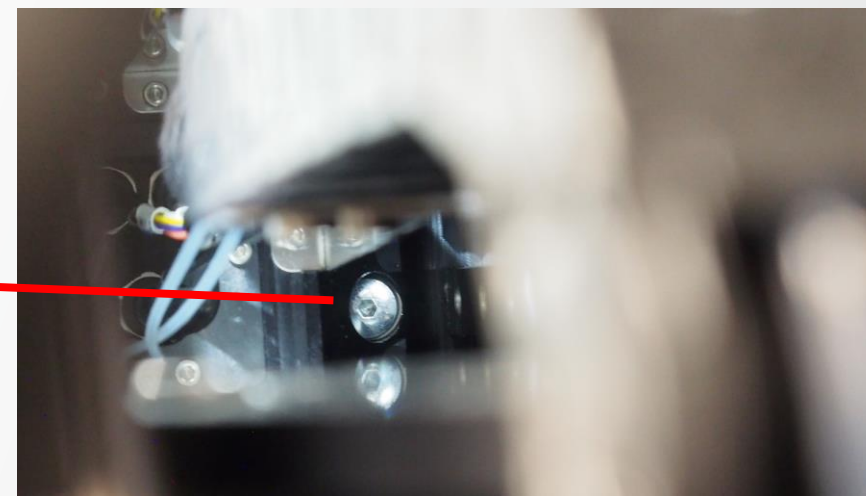
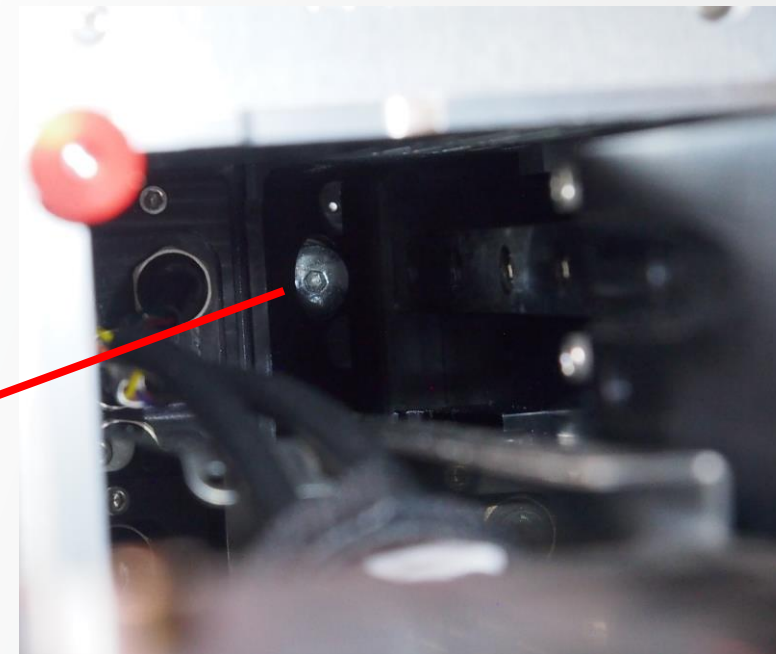
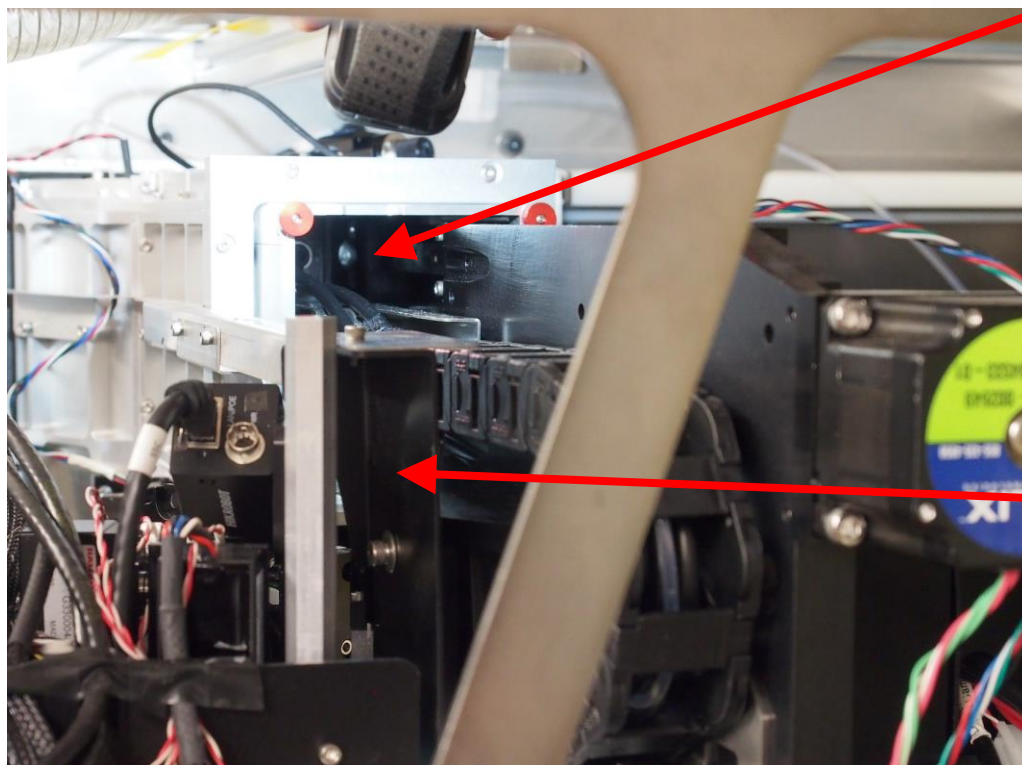
IM00842

Long Blade Bit

Socket, 3/32 x 6.0"

Release XZ

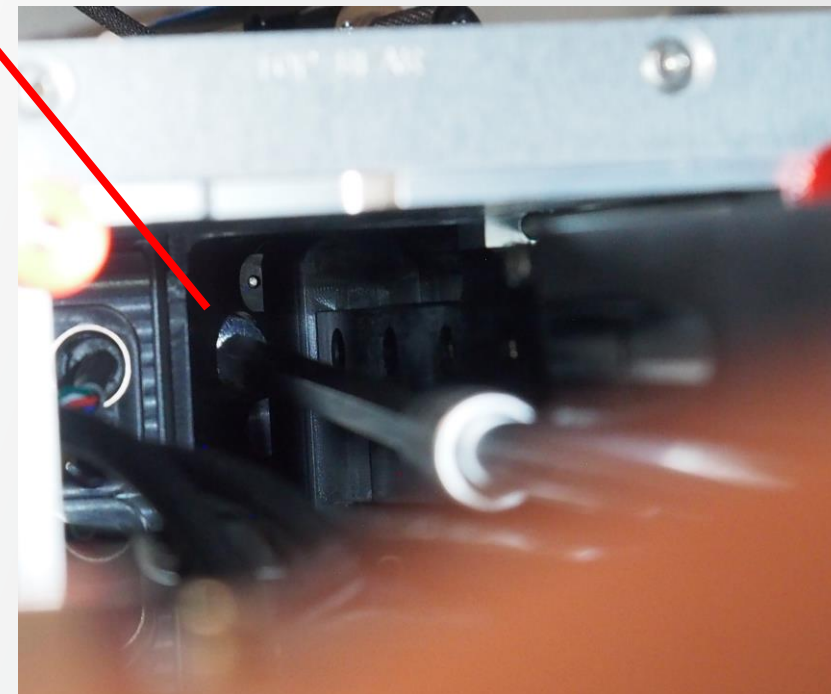
- | | |
|----------|--|
| 1 | Locate the two ¼-turn latches on the rear-wards side of the Y-axis Bulkhead. A flashlight or headlamp is essential. A second person to help hold the flashlight is helpful |
| 2 | The top latch can be seen by looking over the top of the Y-axis cable track. |
| 3 | The bottom latch can be seen by looking just under the bottom of the top run of the Y-axis cable track. |



Release XZ

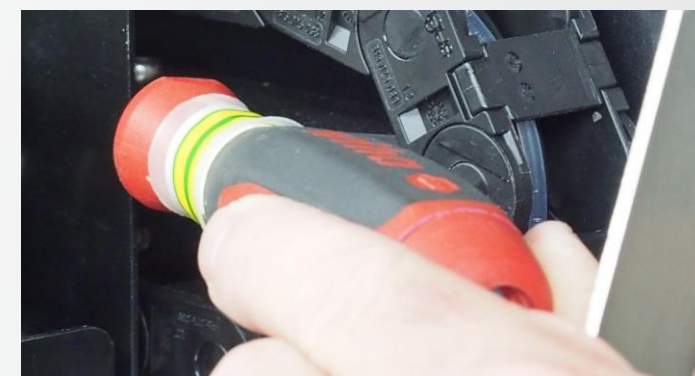
1

Use the tool combination to turn the top latch ¼ turn CCW.



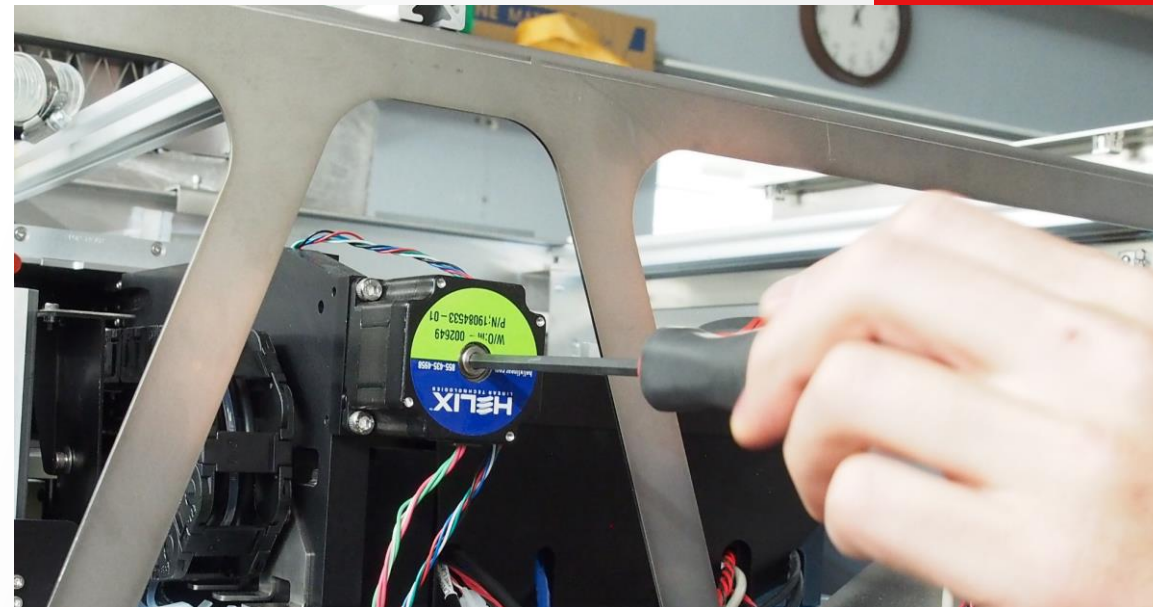
Release XZ

- | | |
|----------|--|
| 1 | Remove the IM00279 driver from the tool combination |
| 2 | Insert the tool tip into the recess of the bottom latch. |
| 3 | Replace the IM00279 driver on the end of the tool combination. |
| 4 | Use the tool combination to turn the bottom latch ¼ turn CCW. |



Move Y Axis

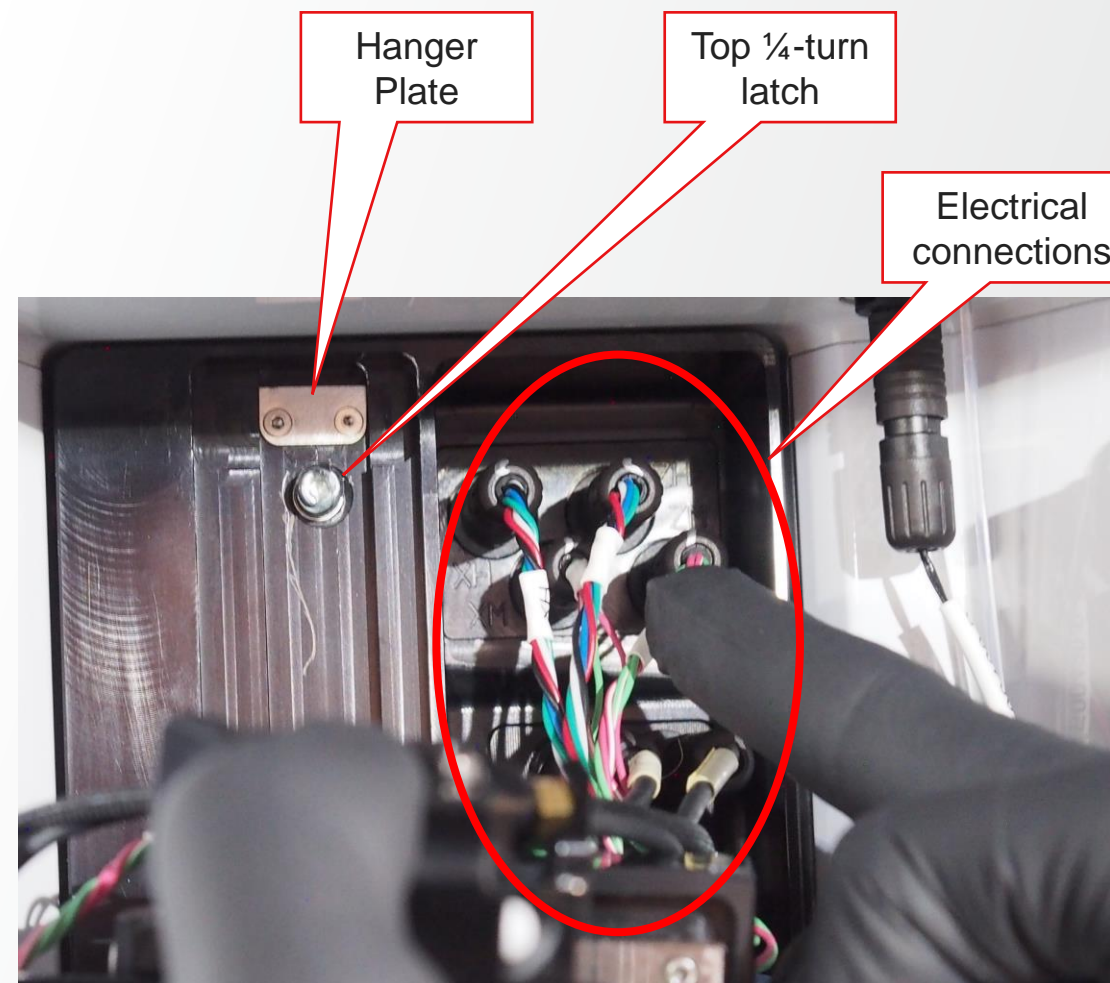
- | | |
|---|--|
| 1 | Use a 5 mm hex driver to move the Y-axis forwards as far as it will go (approximately 30 mm) |
|---|--|



Remove XZ

1 Lift the XZ Gimbal assembly vertically, approx. 1 mm, to disengage it from the hanger plate in the Bulkhead, pull the assembly forwards to completely disengage it.

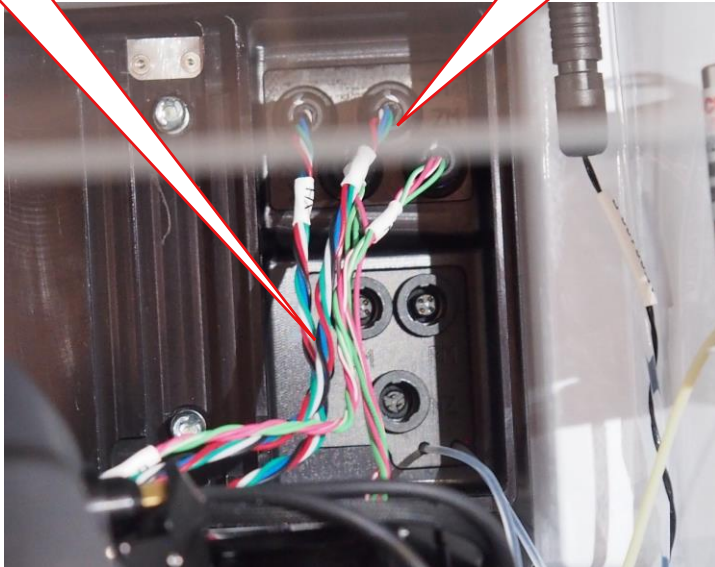
Hold it with your left hand, near the bulkhead so you can see the seven electrical connections between the XZ Gimbal assembly and the Mover Bulkhead.



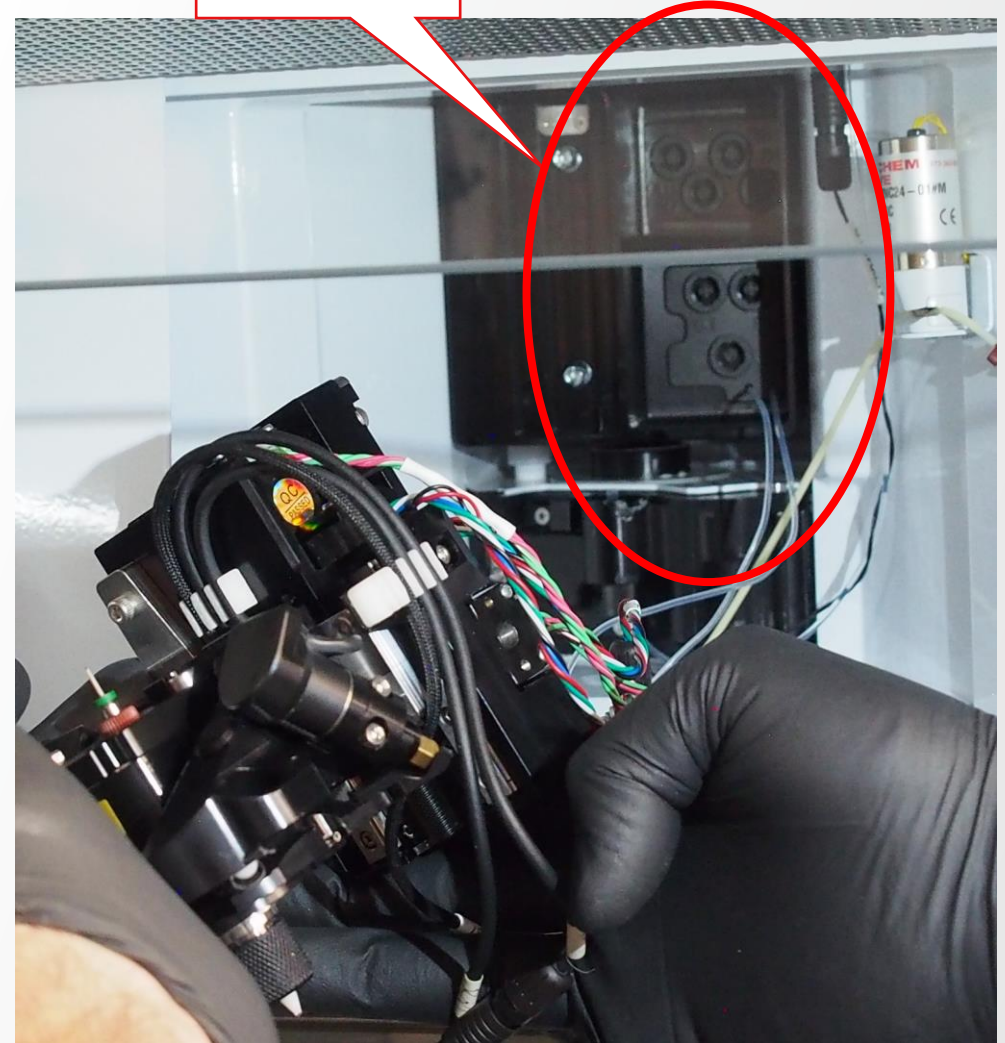
Disconnect Cables

- | | |
|---|---|
| 1 | Disconnect the seven electrical connections, starting from the bottom and progressing up to the top |
|---|---|

First three

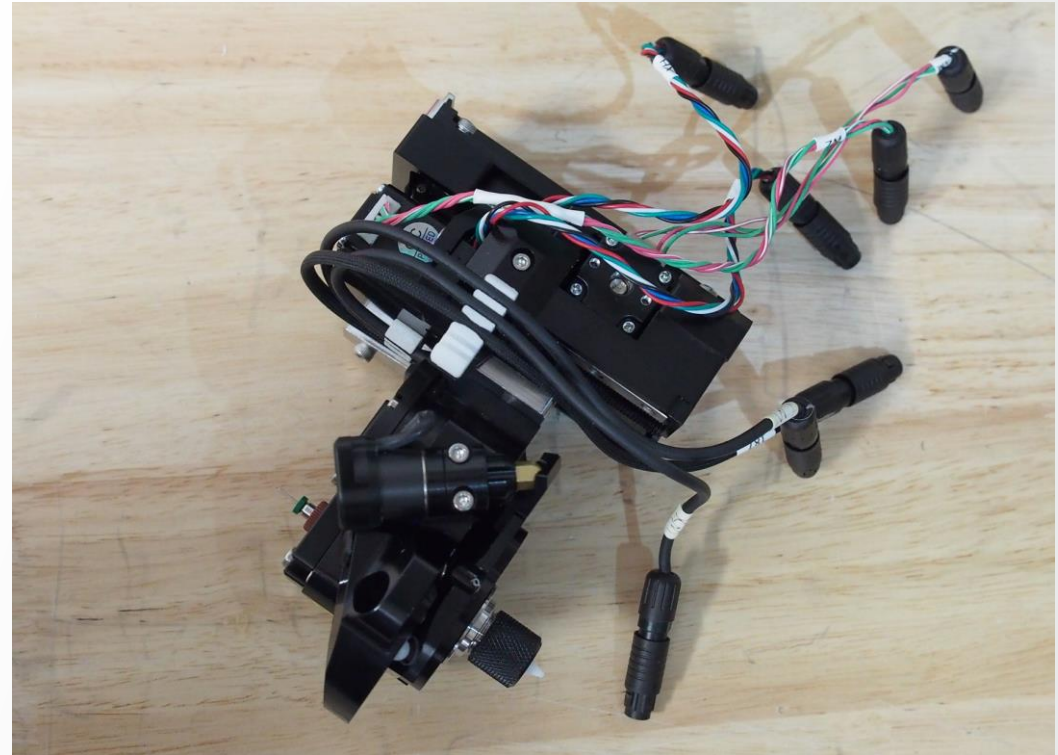


Seven done



Complete

	XZ Gimbal Assembly removed



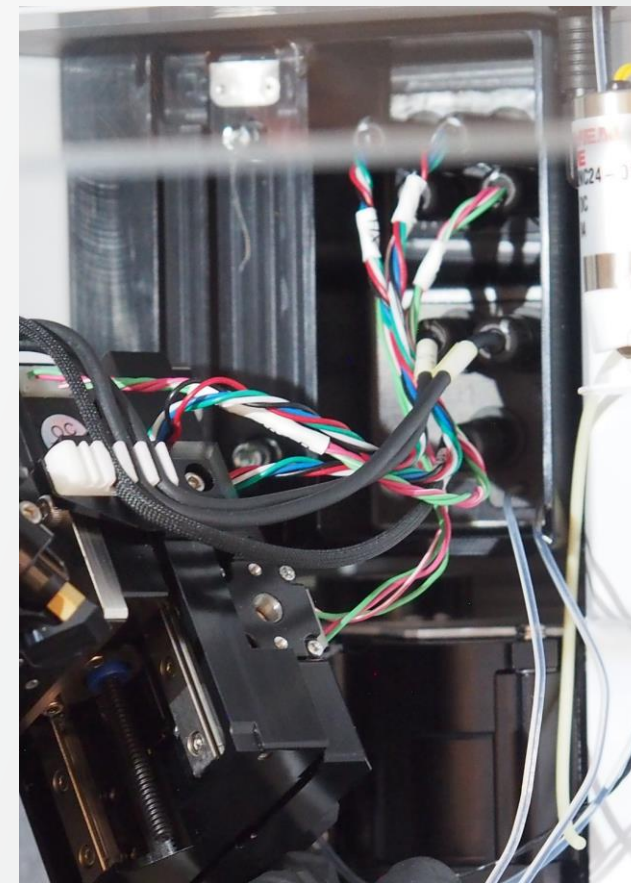
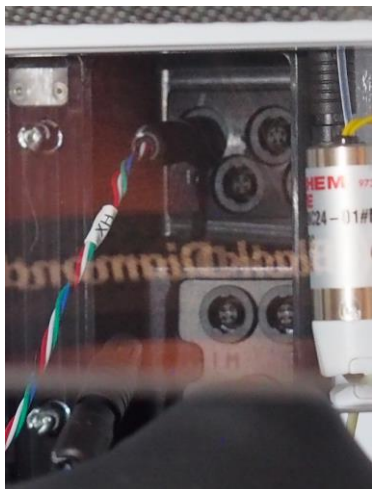
Reinstallation

1

Installation is the reverse of removal and outlined in the following steps.

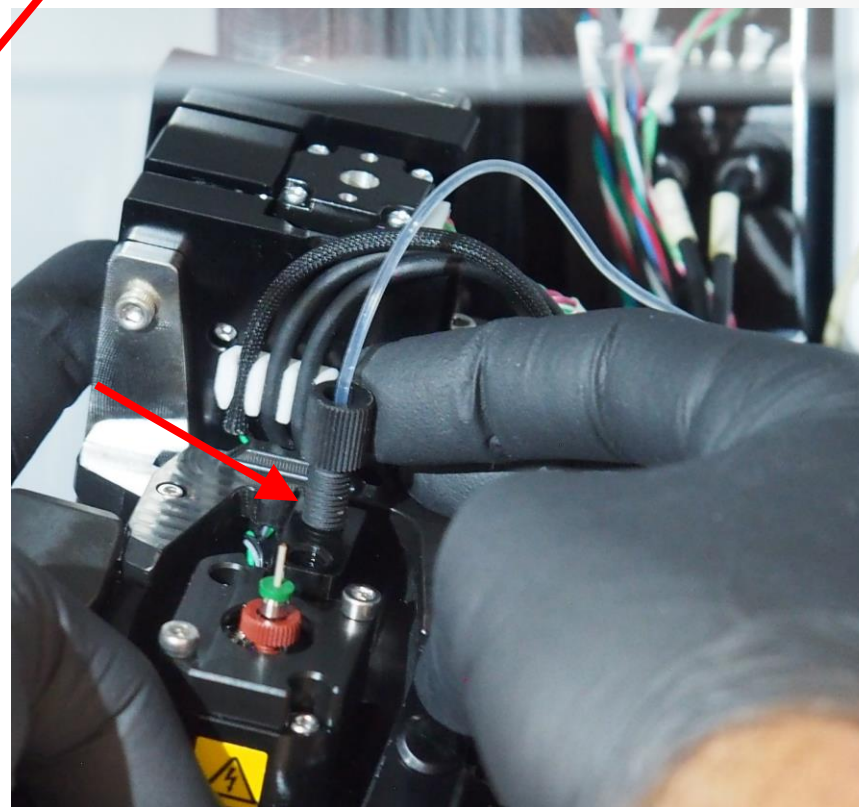
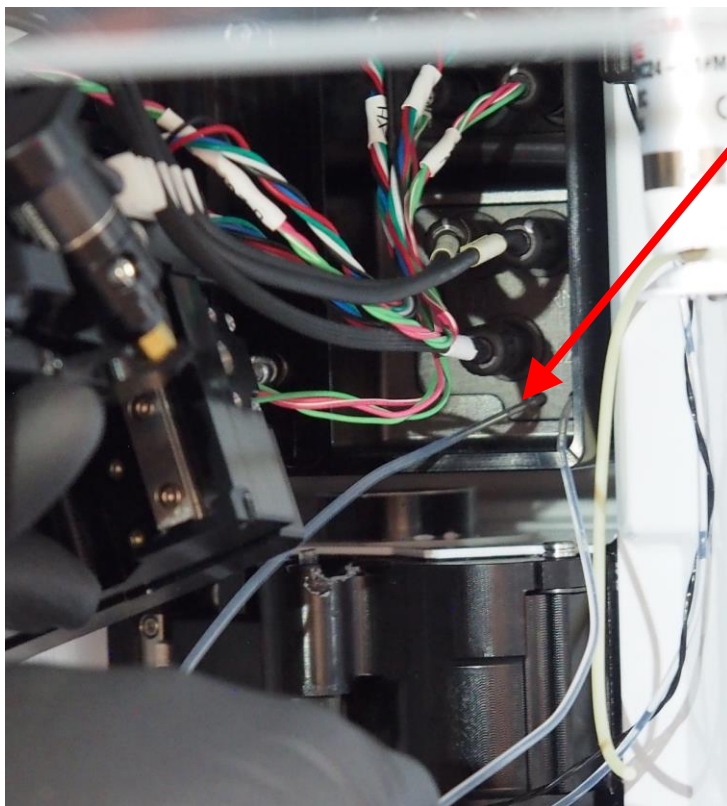
Reinstallation

- 1 Hold the XZ Gimbal in your left hand and reconnect the seven electrical connections, starting at the upper left, and proceeding downwards.



Reinstallation

- | | |
|----------|---|
| 1 | Connect the left-most tube from the bulkhead (Waste) to the rear-most port on the Nozzle Body |
| 2 | Tighten the tube fitting with the torque tool |



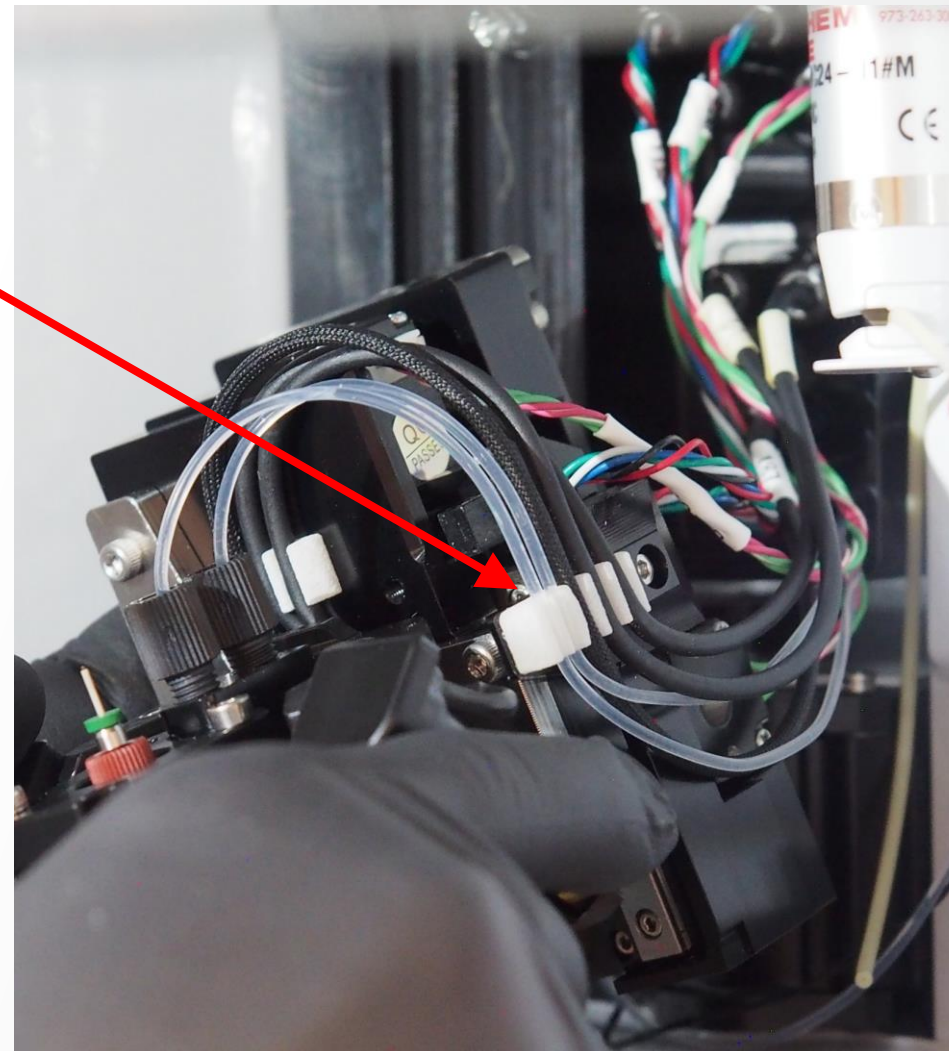
Reinstallation

- | | |
|----------|---|
| 1 | Connect the remaining, right-most, tube from the bulkhead (Sheath) to the forward port on the Nozzle Body |
| 2 | Tighten it with the torque tool |
| 3 | Do not re-attach the sample line yet. |



Reinstallation

- | | |
|----------|---|
| 1 | Snap the two fluid tubes into the forward-most positions in the tube clip. |
| 2 | Forward tube to forward clip, rearwards tube to rear clip. |
| | Examine the routing of all the wire bundles and tubes. They must be neat, tidy, not kinked and wrapped around each other or caught on anything else. They must route in smoothly shaped S-curves as shown |

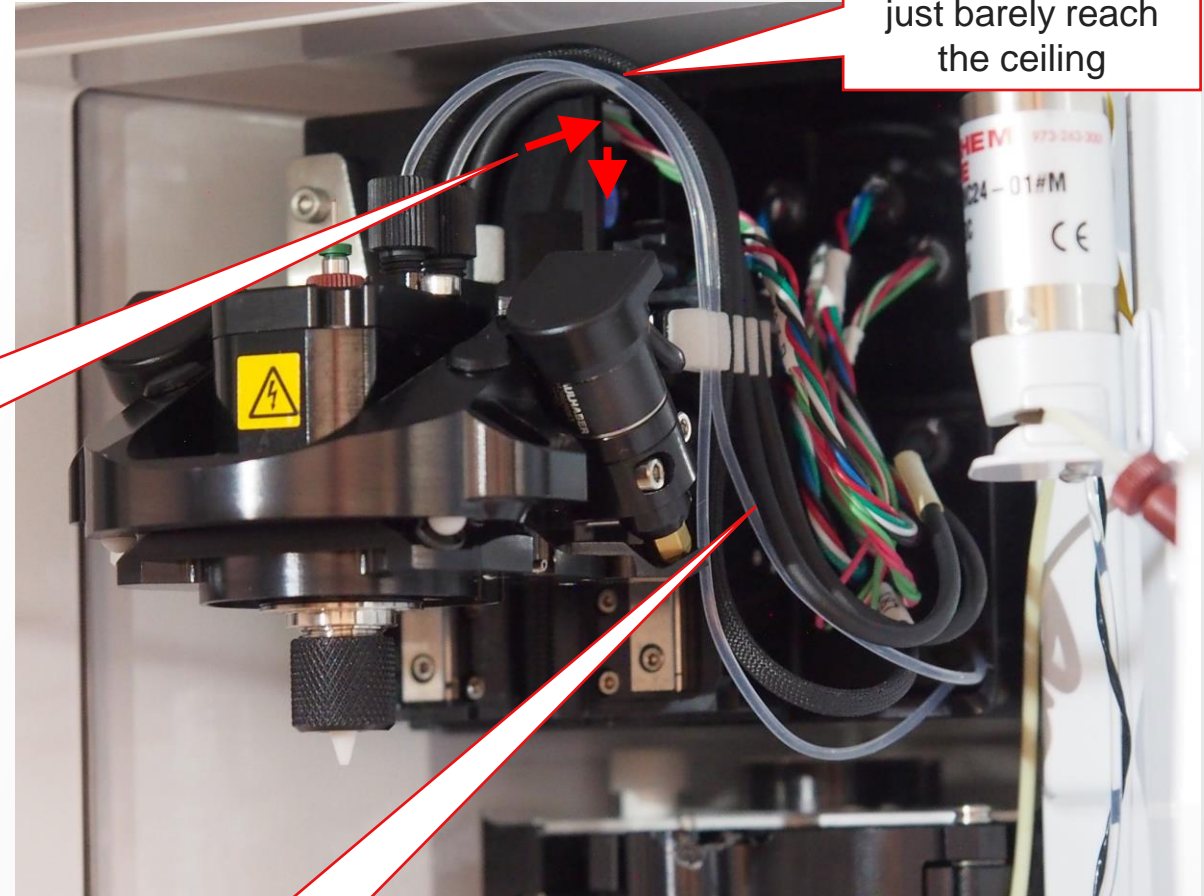


Reinstallation

Tube and wire service loops must just barely reach the ceiling

- | | |
|---|--|
| 1 | Hang the XZ Gimbal assembly back on the hanger plate of the bulkhead. The Assembly must be held as high and nearly as far left as possible to re-hang. |
| 2 | It may take a while to get the hang of it. |
| | Verify that the cables and tubes are not caught between the XZ Gimbal assembly and the bulkhead and are not caught on anything or snarled or in any way in bad form. |

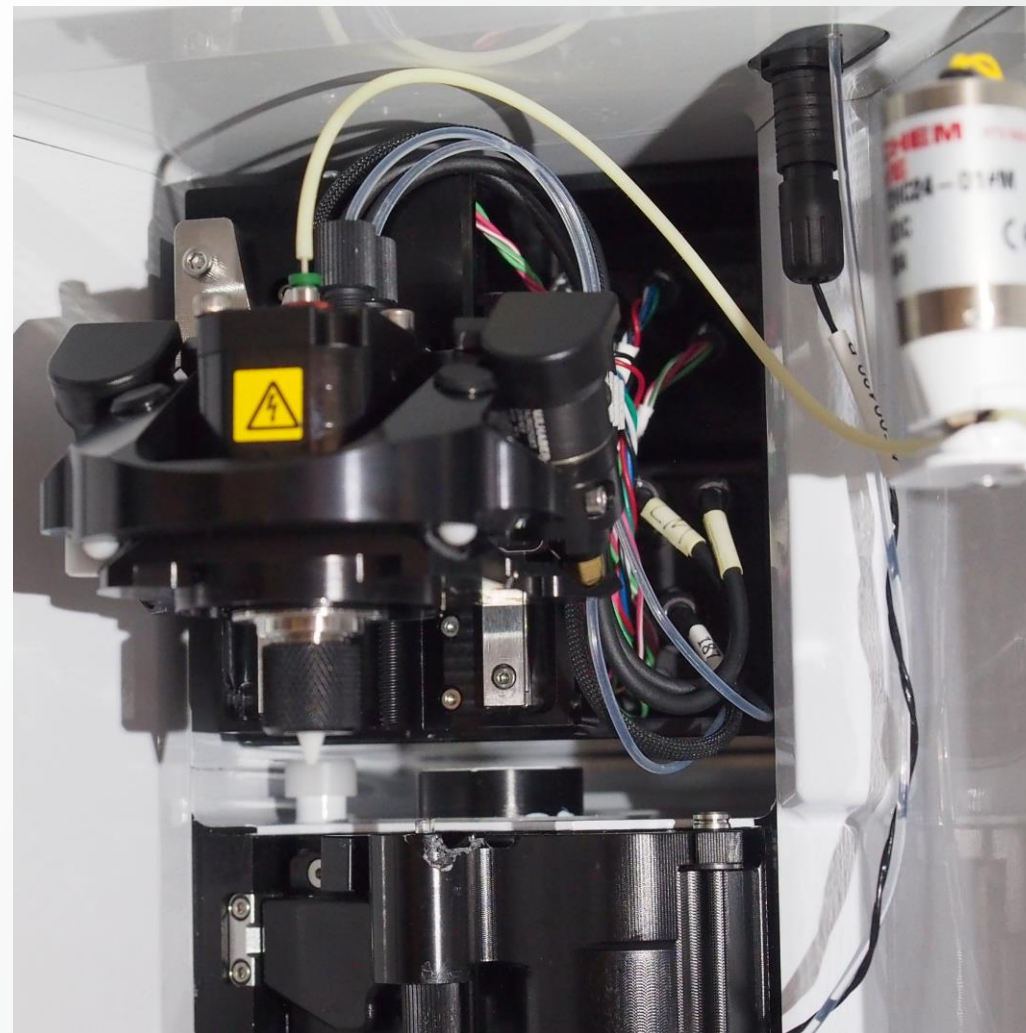
Hold XZ Gimbal high and straight up/down, move rear-wards and clip onto hanger plate



Just like this!

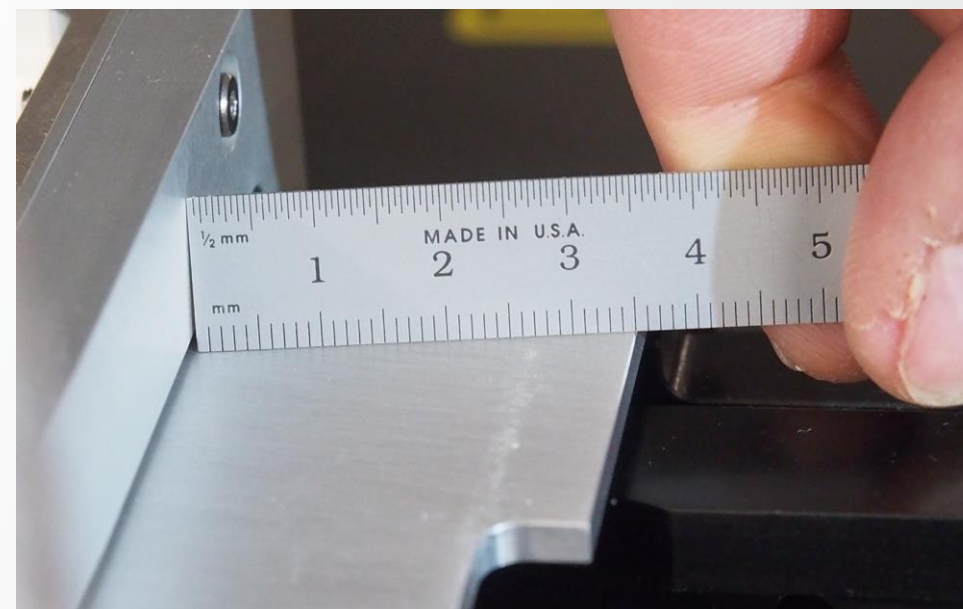
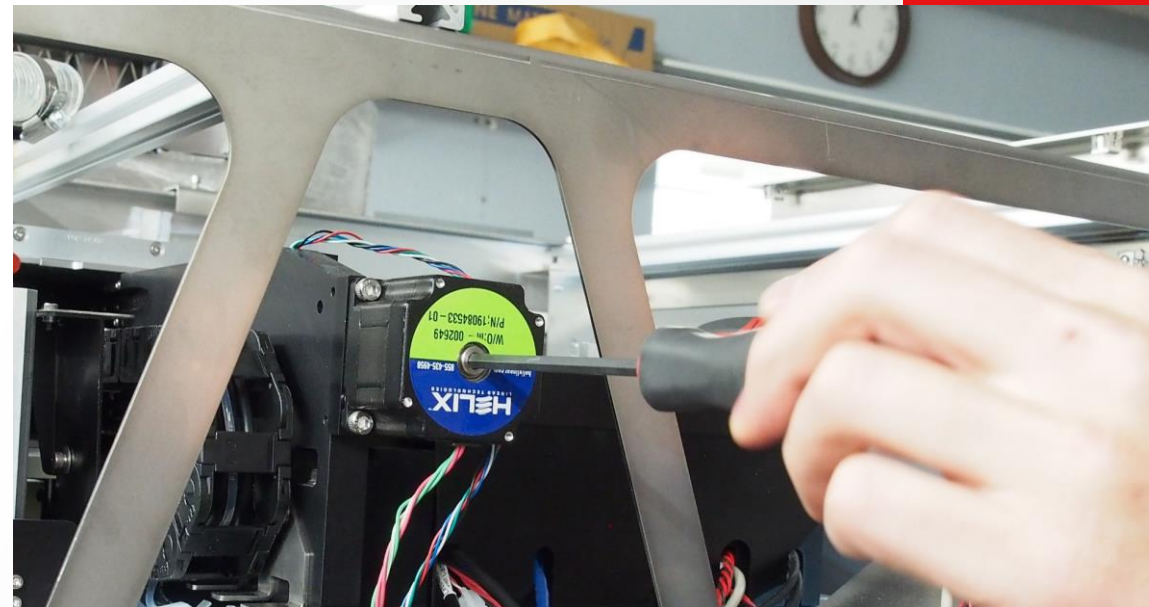
Reinstallation

- | | |
|----------|------------------------------|
| 1 | Re-connect the sample line |
| 2 | Make sure it is happy too!!! |



Reinstallation

- | | |
|----------|---|
| 1 | Use a 5 mm hex driver to move the Y-axis rear-wards approximately 30 mm |
| 2 | Stop moving when the Y-axis Moving Cover extends 35 mm past the Y-axis Seal assembly. |

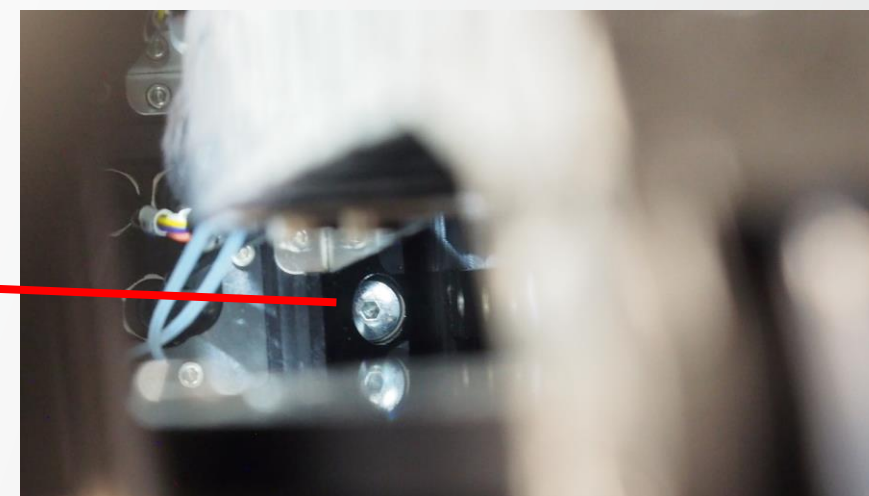
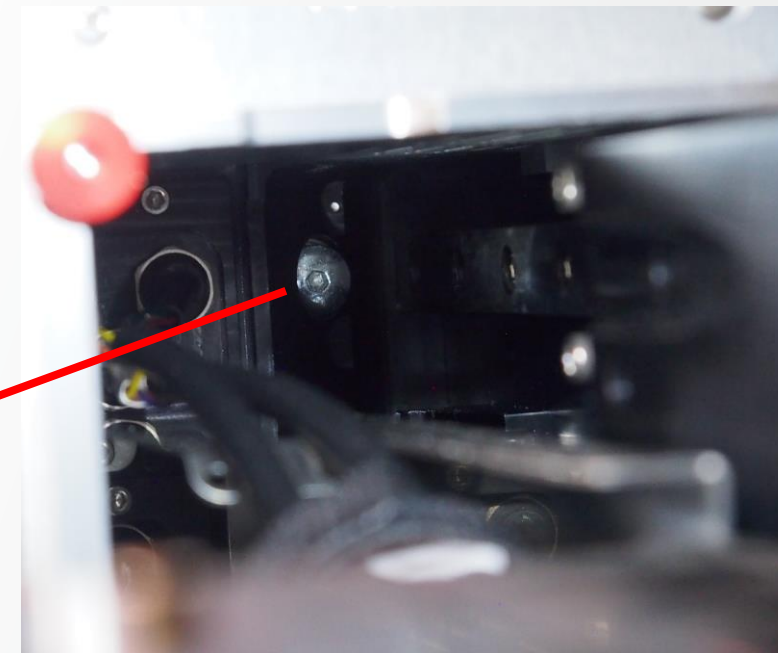
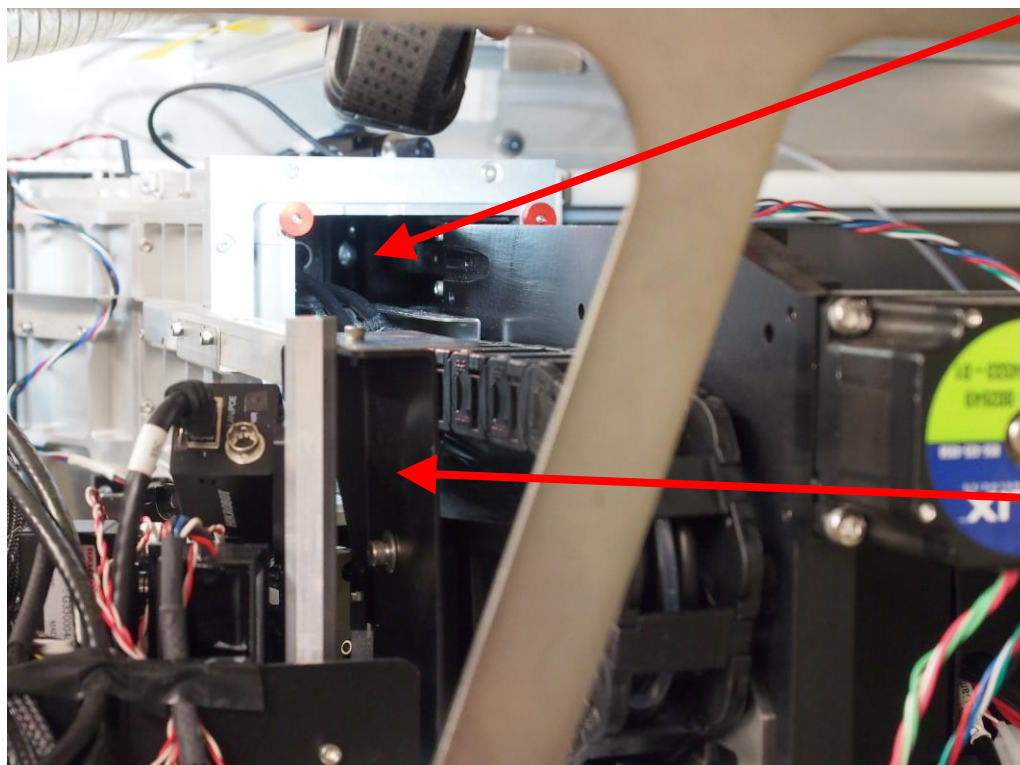


Reinstallation

1 Locate the two ¼-turn latches on the rear-wards side of the Y-axis Bulkhead. A flashlight or headlamp is essential. A second person to help hold the flashlight is helpful

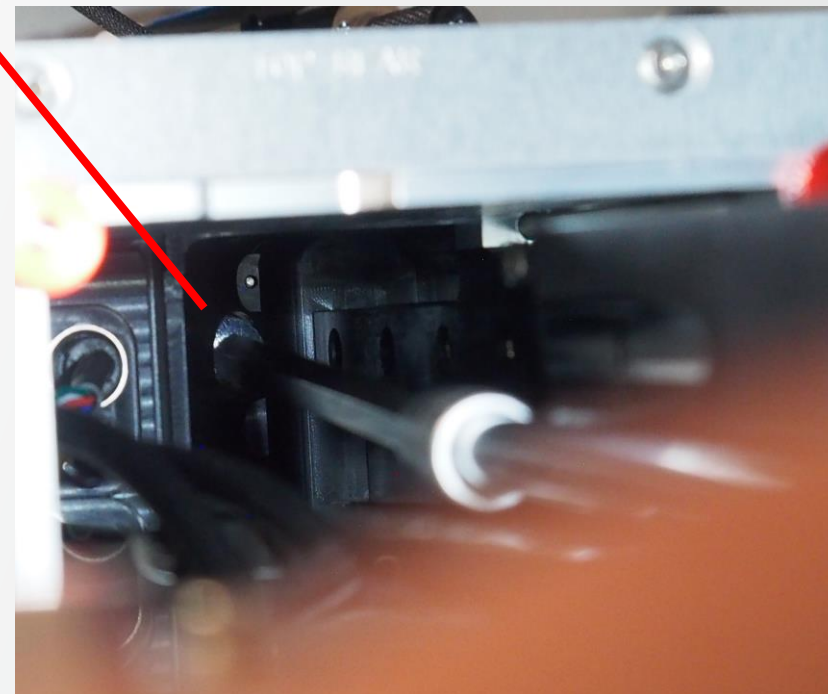
The top latch can be seen by looking over the top of the Y-axis cable track.

The bottom latch can be seen by looking just under the bottom of the top run of the Y-axis cable track.



Reinstallation

- 1 Use the tool combination to **PUSH AND TURN** the top latch $\frac{1}{4}$ turn Clockwise. It may need to be turned gently while pushing to compress its spring and catch onto the latch bar in the XZ Gimbal. It will **CLICK!** when latching into position.



Reinstallation

- | | |
|----------|--|
| 1 | Remove the IM00279 driver from the tool combination |
| 2 | Insert the tool tip into the recess of the bottom latch. |
| 3 | Replace the IM00279 driver on the end of the tool combination. |
| 4 | Use the tool combination to PUSH AND TURN the bottom latch ¼ turn Clockwise. It may need to be turned gently while pushing to compress its spring and catch onto the latch bar in the XZ Gimbal. It will CLICK! when latching into position. |



Reinstallation

- | | |
|----------|--|
| 1 | Use a 5 mm hex driver to move the Y-axis forwards as far as it will go (approximately 30 mm) |
|----------|--|

